Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-24. (Cancelled)

25. (Cancelled).

26. (Previously Amended) A process according to claim 46 in which the computer is also programmed to control the speed of rotation of the component.

27. (Previously Amended) A process according to claim 46 wherein the computer is also programmed to control the relative axial movement between the tool and the component.

28. (Cancelled)

29. (Previously Amended) A process according to claim 46 in which the programming is such as to increase the depth of cut during regularly spaced apart intervals.

30. (Previously Amended) A process according to claim 29 in which the timing of the intervals is adjusted from one revolution to the next so that the depressions do not become aligned parallel to the axis of the component.

31. (Previously Presented) A process according to claim 29 in which the timing of the intervals is such as to produce a plurality of depressions around each revolution of the component.

32. (Previously Amended) A process according to claim 31 in which the timing of the intervals is adjusted from one revolution to the next so that the depressions do not become aligned parallel to the axis of the component.

33. (Previously Amended) A process according to claim 46 wherein the transition

between the turned surface of the component and each such depression is gradual and is generated during more than one revolution of the component, by programming the computer to increase the depth of cut gradually over the said one or more revolutions during which the transition is to occur.

34. (Previously Amended) A process according to claim 46 wherein at one end of such a depression the computer program is arranged to reduce the depth of cut in a similar gradual manner over a corresponding number of revolutions of the component, back to that required to produce the turned surface of the component beyond the depression.

35. (Previously Amended) A process according to claim 46 wherein the component is to taper in overall diameter, and the depth of cut instructions generated by the program during the transitions and during the generation of each reduced diameter region takes this into account, so that the diameter of the component is progressively reduced during the whole of the turning process.

36. (Previously Amended) A process according to claim 46 wherein the final surface specification includes a bearing ratio vector requirement, which is achieved by adjusting the rate of change of radius of the component at one or both ends of each depression so that the required percentage of component material will exist at the specified depths relative to the peak diameter of the turned surface.

37. (Cancelled)

38. (Previously Amended) A process according to claim 46 wherein the final surface is to be capable of being tested at any point along its axial length, wherein the

program is arranged for the depressions to be evenly distributed over the overall surface of the component to ensure that measurements made on the component will tend to be the same wherever they are made.

39. (Previously Amended) A process according to claim 46 wherein the component is to be gauged as part of the control of the turning process, wherein the program organises the computer to store coordinates of the depressions and transitions or an algorithm of their generation, so that an appropriate correction can be made to the result of any gauged value of the diameter, or the position at which a gauge is to be applied can be determined in advance of the gauging step and the gauge or the component positioned accordingly before the measurement is made.

40. (Previously Amended) A component when manufactured in accordance with a computer controlled hard turning process as claimed in claim 46.

41. (Currently Amended) A programmed computer or computer program for operating a computer, adapted to control the operation of a turning process for removing metal from a workpiece rotating about an axis by the engagement therewith of the tip of a non-rotating metal cutting tool, at least the position of which is controlled by the said computer, and which as a result of synchronized relative movement between the non-rotating tool and the rotating workpiece engages the workpiece along a locus of points which define a helix that encircles the workpiece a plurality of times, and would produce a smooth machined surface thereon, wherein the program serves to alter the ~~**instantaneous position of**~~ **depth of cut made by** the **non-rotating** tool so as to introduce into the otherwise smooth surface of the workpiece, during the

machining process, plural spaced apart **annular** depressions for the purpose of simulating a surface typical of that which would be obtained thereon if the ~~latter~~ **surface** had been finished by grinding.

42. (Currently Amended) A metal turning machine in combination with a computer based control system therefore~~, when~~ **that is** programmed to perform a hard turning process on a rotating workpiece involving the removal of metal from the surface of the rotating workpiece by the engagement ~~therewith of~~ **with** the tip of a non-rotating metal cutting tool, at least the position of which is controlled by the said computer based control system, and which as a result of synchronized relative movement between the non-rotating metal cutting tool and the rotating workpiece engages the workpiece along a locus of points which define a helix that encircles the workpiece a plurality of times, and would produce a smooth surface thereon, wherein the program serves to alter the instantaneous ~~position~~ **depth of cut produced by** ~~of~~ the tool during the machining process, so as to introduce into the otherwise smooth surface plural spaced apart depressions, for the purpose of simulating a surface typical of that which would be obtained on the workpiece if the latter had been finished by grinding.

43. (Previously Amended) A method or apparatus according to claim 46 further comprising the steps of gauging and/or measuring the machined part during the machining process, to generate signals indicative of one or more dimensions of the machined part, and supplying the signals to the computer, to assist in the control of the machining process.

44. (Currently Amended) A machine tool in combination with a computer based control

system therefore~~, when~~ **that is** programmed to perform a machining process on a rotating workpiece, involving the removal of material from the workpiece by the engagement with a non-rotating cutting tool, at least the position of which is controlled by the said computer based control system and which, as a result of synchronized relative movement between the tool and the workpiece engages the workpiece along a locus of points which define a helix that encircles the workpiece a plurality of times, and would produce a smooth surface on the machined part, wherein the program serves to alter the instantaneous **depth of the cut produced by** ~~position of~~ the **non-rotating** tool so as to introduce into the otherwise smooth surface of the machined part, plural spaced apart depressions during the machining process, for the purpose of simulating a surface typical of that which would be obtained thereon if the latter had been finished by grinding.

45. (Previously Presented) A machine tool according to claim 44, further comprising at least one gauging or measuring device adapted to perform measurements on the workpiece during the machining process, to generate signals indicative of one or more dimensions of the workpiece, and means for conveying the signals to the computer as feedback signals indicative of how the process is progressing, to assist in the control of the process.

46. (Currently Amended) A turning process for producing a finished surface on the surface of a component **using a non-rotating tool**, the process comprising:

rotating the component about a component axis,

engaging the surface of the component with the tip of a **non-rotating** tool,

moving the point of engagement between the tip of the **non-rotating** tool and the surface of the component in the direction of the component axis as the component rotates around said axis whereby the locus of said point of engagement is a helix which encircles said component axis a plurality of times; ~~and~~

controlling the depth of cut taken by the non-rotating tool;

increasing the depth of cut taken by the tip of the non-rotating tool at intervals during the turning process **by altering the distance between the tip of the cutting tool and said component axis while rotating the component** to create a plurality of depressions in the turned surface of the component, whereby the surface of the depressions and the surface of the component surrounding the depressions are formed during the same machining cycle and by the same tool**; and**

advancing the tool in the direction of the component axis by no more than the thickness of its cutting tip during each revolution of the component, so that the surface of the component, except for the depressions, is a smooth surface.

47. (Cancelled)

48. (Cancelled)

49. (Previously Presented) The turning process of claim 46 further comprising the step of arranging each interval to extend over a plurality of consecutive revolutions of the component so that each resulting depression comprises an annular region of reduced diameter extending completely around the circumference of the component.

50. (Currently Amended) A turning process in which a **non-rotating** cutting tool engages the surface of a rotating component so as to remove a helix of metal

therefrom as a result of synchronization of the relative axial movement of the tool and the component and the rotation of the **component** ~~**latter**~~, ~~**in which at least**~~ **controlling** the depth of the cut achieved by the **engagement of the** tool ~~**and**~~ **the** component ~~**engagement is under the control of**~~ **with** a computer which is programmed to increase the depth of cut at intervals during the turning process, ~~**so as to create**~~ **creating** in the turned surface a plurality of depressions which have a marginally smaller radius of curvature than that of the surrounding turned surface, and where a bluing gauge percentage figure has to be complied with, **programming** the computer ~~**is programmed**~~ to adjust the extent of the depressions relative to the remaining area of the turned component surface, so as to provide a sufficient overall area of turned surface which will be inked by the gauge during a bluing test, relative to the overall area of the depressions which will not normally become inked during the test.